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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,133	03/26/2004	Ralf Kruckel	ANO 6295 US/0606	2794

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AKZO NOBEL INC.
INTELLECTUAL PROPERTY DEPARTMENT
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TARRTOWN, NY 10591

EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1731

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/811,133	Applicant(s) KRUCKEL, RALF	
	Examiner Dennis Cordray	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 5 and 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/15/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

The oath or declaration submitted 6/21/2004 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The originally submitted Oath recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56.

Claim Objections

Claims 5 and 9 are objected to because of the following informalities:

In Claim 5, line 7, the word "others" should be changed to "other".

In Claim 9, line 2, the word "of" should be inserted between the words "consisting" and "compounds".

Appropriate correction is required.

Response to Arguments

Applicant's arguments filed 6/22/2007 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies

Art Unit: 1731

(i.e., dispersions of high stability) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to the argument that Wendel et al does not teach the claimed sizing agents and that one skilled in the art would not have any reason to use the claimed emulsifiers with the claimed sizing agents based on the cited prior art, Frolich et al discloses anionic dispersing agents containing sulfate, sulfonic, phosphate or phosphonic acid groups. Wendel et al teaches that alkyl sulfate or alkyl phosphates in the form of adducts with ethylene oxide are conventional emulsifiers that contain sulfate, or phosphate groups, thus are well known in the art. The use of a conventionally known emulsifier in the sizing dispersion of Frolich et al would have yielded predictable results to one of ordinary skill in the art at the time of the invention, formation of a dispersion of the sizing agents, and would have been an obvious functionally equivalent option.

In response to the argument that Frolich et al teach that the dispersing agent must be hydrophobically modified, it is noted that the groups R^3 and R^5 in the claimed dispersing agent are hydrocarbon groups and that the instant Specification provides guidance as to the scope of the term "hydrocarbon groups" as preferably having from 3 to 50 carbon atoms and most preferably from 8 to 20 carbon atoms (p 4, lines 4-5), thus the dispersing agent of the instant invention is hydrophobically modified. While the length of the claimed hydrocarbon groups is not claimed, one seeking to practice the invention would look to the Specification for such guidance.

Art Unit: 1731

In regard to Applicant's argument that Wendel et al teaches that emulsifiers are not necessary in the disclosed process of emulsion polymerization, note that Wendel et al also teaches that, in the alternative, conventional emulsifiers can be used in conventional amounts. Wendel et al does disclose that a cationic emulsifier is preferred but provides no explanation or reason to guide one of ordinary skill in the art away from the several species of nonionic, anionic and amphoteric emulsifiers that are also recited (col 5, lines 2-20). In addition, Wendel et al refers to the recited species of anionic emulsifiers as conventional. One of ordinary skill in the art would have readily used any of the recited conventional emulsifiers as a functionally equivalent option that would yield predictable results.

Finally, as noted in the rejection, Frolich et al and Wendel et al both disclose sizing dispersions for papers. "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). It would have been obvious to one of ordinary skill in the art to form mixtures of the dispersions of Frolich et al and Wendel et al to also be used for sizing paper and to optimize the mixed composition to obtain the maximum benefits.

The rejections are maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frolich et al (6306255) in view of Wendel et al (4051093).

Claims 1 and 4-6: Frolich et al discloses an aqueous dispersion for paper sizing comprising a cellulose-reactive sizing agent, most preferably a ketene dimer, a non-cellulose reactive sizing agent, and a hydrophobically modified dispersing agent that is preferably anionic and contains sulfate, sulfonic, phosphate or phosphonic acid groups (Abs; col 2, lines 49-56; col 3, lines 22-24 and 45-55). The sizing dispersion can be used for surface or internal sizing (col 9, lines 1-4).

Frolich et al does not disclose an emulsifier from the group consisting of oxyalkylene phosphate and sulfate esters and salts thereof.

Wendel et al discloses a paper sizing composition comprising a copolymer emulsion and teaches that conventional anionic emulsifiers include alkyl sulfates, alkyl sulfonates and alkyl phosphates that can be in the form of adducts of ethylene oxide (Abs; col 1, lines 33-34; col 5, lines 12-15).

The art of Frolich et al, Wendel et al and the instant invention is analogous as pertaining to sizing dispersions for paper. It would have been obvious to use the

Art Unit: 1731

claimed emulsifier in the dispersion of Frolich et al in view of Wendel et al as a conventionally known emulsifier and functionally equivalent option.

Claims 2 and 9: Frolich discloses the presence of a surfactant of the general formula $R_4N^+X^-$, each R is independently H or a hydrocarbon group having from 1 to 30 carbon atoms, and X^- is an anion (col 4, lines 35-50 and 60). The disclosed list of examples of surfactants is almost identical to the list of examples recited in the instant Disclosure on p 5, lines 8-15, thus meets the claimed molecular weight.

Claims 3 and 10: The anionic emulsifier is an anionic stabilizer. Alternatively, Frolich et al teaches that alkyl ketene dimers are usually prepared using a sodium lignosulfate (a lignin sulfonate) (col 1, lines 21-24), thus it would have been obvious to one of ordinary skill in the art to include a typical dispersant used with alkyl ketene dimers.

Claims 7-8: Frolich does not disclose a non-reactive size comprising styrene or alkyl esters of (meth)acrylic acid.

Wendel et al discloses that the copolymer comprises:

- (A) from 0.5 to 15 per cent by weight of monomers containing a polymerizable C=C bond and at least one carboxyl and/or sulfonic acid or phosphate or phosphite group,
- (B) from 5 to 30 per cent by weight of monomers containing a C=C bond and a tertiary or quaternary amino group, or a nitrogen-containing heterocyclic group,
- (C) from 0 to 94.5 per cent by weight of styrene and/or acrylonitrile

Art Unit: 1731

(D) from 0 to 94.5 per cent by weight of acrylic or methacrylic acid esters of alkanols of 1 to 8 carbon atoms, and

(E) from 0 to 30 per cent by weight of further olefinically unsaturated monomers.

The amount of monomers C and D is at least 25%, preferably at least 70%, and up to 94.5% by weight of the polymer. Wendel et al discloses that preferred (meth)acrylic acid esters are methyl (meth)acrylates, ethyl (meth)acrylates, n-propyl (meth)acrylates, n-butyl (meth)acrylates and isobutyl (meth)acrylates (Abs; col 2, lines 8-49, particularly lines 44-49; col 4, lines 63-65). Thus, in some embodiments, the polymer of Wendel et al comprises 94.5% styrene and alkyl (meth)acrylates, the remainder being other ethylenically unsaturated monomers. Wendel et al recites suitable emulsifiers for use in the sizing emulsion are anionic alkyl sulfates, alkyl sulfonates and alkyl phosphates that can be in the form of adducts of ethylene oxide (col 5, lines 12-15). Note that the instant claim language allows for multiple species of ethylenically unsaturated monomers.

The following is from MPEP 2144.06:

"It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted) (Claims to a process of preparing a spray-dried detergent by mixing together two conventional spray-dried detergents were held to be prima facie obvious.).

Frolich et al and Wendel et al disclose sizing dispersions for papers. It would have been obvious to one of ordinary skill in the art to form mixtures of the dispersions of Frolich et al and Wendel et al to also be used for sizing paper as a functionally equivalent composition and to optimize the mixed composition.

Claims 11-12: Frolich et al discloses a preferred embodiment wherein the dispersion is anionic (col 6, lines 54-59). Examples are given showing better performance when the dispersion is anionic (col 9, line 26 to col 10, line 27, especially col 10, lines 25-27). Example 1 also discloses a pH for the dispersion of 5 (col 9, lines 34-35). Wendel et al discloses that the emulsions are stable at a pH from 2 to 12 (col 5, line 68 to col 6, line 3).

Claims 13-16: Frolich et al and Wendel et al are applied as in Claims 1-10. With regard to Claim 14, Frolich discloses that the dispersant is made hydrophobic by attaching one or more hydrophobic chains having from 4 to 30 carbon atoms (col 3, lines 29-36). Wendel et al discloses alkyl sulfates, alkyl sulfonates and alkyl phosphates that can be in the form of adducts of ethylene oxide without specifying the number of oxyethylene (ethylene oxide) units. However, other ethoxylated surfactants disclosed by Wendel et al comprise chains of 7 to 50 oxyethylene units with a long chain alcohol to form a hydrophobic portion (col 5, lines 8-10). It would thus have been obvious to one of ordinary skill in the art to include a similar range of oxyethylene units in the alkyl sulfate, alkyl sulfonate and alkyl phosphate dispersants.

Claims 17-18: Frolich discloses bringing together the components of the dispersion and homogenizing the mixture to obtain an aqueous dispersion (col 7, lines

Art Unit: 1731

62-66). Wendel et al discloses that the emulsifiers form a homogeneous mixture in water (col 5, lines 7-9).

Claims 19-20: The processes of forming a paper web and dewatering on a wire to obtain a paper and white water are standard papermaking procedures and would have been obvious to one of ordinary skill in the art. Addition of the sizing dispersion to the stock or to a paper surface is disclosed by Frolich et al (col 9, lines 4-10).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

Art Unit: 1731

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC
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